Mission: Create a UV Radiation PSA

**Overview**

* In this mission, students gather UV data using UV meters and a variety of UV sensitive materials to understand the effects of ultraviolet radiation.

**End Product/Goal:**

Students will use what they discover about UV radiation to create a Public Service Announcement about the dangers of UV exposure. The PSA audience is a student selected peer group.

**Suggested Time Frame:** (6 CCA sessions)

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| Session 1 | Discover how the sun’s UV radiation affects a variety of materials. |
| Sessions 2 and 3 | Present mission…to teach peers about the dangers of sun exposure. Student groups (using any of the materials provided) develop a plan to investigate most effective method of blocking UV radiation. Use flip video to document discoveries. |
| Sessions 4 and 5 | Create PSA to present to target group (animoto) |
| Session 6 | Share PSAs and vote. Award prizes. |

**Materials/Prep (for each group of 4 students)**

* UV meter
* Plastic Ziplocs to protect UV meter
* Student “Mission Possible” Folder. This folder should be retained by the CCA leader in a crate or housed in a designated area within the room. Students should be instructed to get their mission folders when they arrive and to return it at the end of the session).
* Flip video recorder
* Pencils
* UV sensitive materials: Beads, shoelaces, photosensitive paper
* Variety of sunblock: 4, 15, 30, 50 SPF
* Variety of cloth squares (loose weave, tight weave, dark and light colors)
* UV sensitive materials for prizes (pencils, Frisbees, T-shirt, silicone bracelets, sports drink bottles, ...)
* Computer(s) with internet access (Days 4 and 5)
* UV ink, stamp pad, stamps
* Handheld blacklight (1 per class)

**Session 1:** Engagement/Motivation

Distribute UV sensitive materials to each group (UV meter, T-shirt or bracelet, beads, shoestring, etc.). *Tshirt could have STEM Logo written in visible ink, and other complementary design written in UV sensitive ink.*

Take students outside and provide time for discovery of sunlight’s effects on UV sensitive materials.

Discuss the following with students:

1. What did you discover about UV rays?
2. What questions do you have??

Explain that during the next session, they will learn about the mission.

**Sessions 2 and 3**: Distribute mission folder. Explain that, during this mission, they will:

* Discover how the sun’s UV rays affect different materials
* develop a plan to test how different materials react with and block UV radiation
* create a public service announcement using some pretty cool web 2.0 tools.

Take students outside. Distribute box of assorted UV sensitive materials and Flip video recorder to each group. Encourage students to begin to use the material provided to develop a plan and begin to investigate the most effective methods of blocking UV radiation. Have students use the flip video to document their discoveries. Continue investigation and video recording on Day 3.

**Sessions 4 and 5:** Create PSA to present to target group using Web 2.0 tool. Students will need computer access.

Remind students of their mission: Design a public service announcement to teach peers about the dangers of sun exposure. They may use the resources linked on the next page and select from a list of web 2.0 tools to create the PSA (podcast, blabberize, animoto) to post on your school’s website.

Each group (or class as a whole) should brainstorm and discuss before they begin:

1. A specific population that affects middle school aged kids and teens, and “adopt a” local group as their PSA target audience:

* Sports teams (coaches)
* Pool (beg. of swim lessons or during “adult swim”)…could be laminated and distributed to lifeguards and
* Summer camps
* Day care providers

1. Which Web 2.0 tool they want to use:

* Animoto
* Podcast
* Blabberize

Have student groups work together to create their PSAs.

**Session 6:** Share PSAs and vote. Winning team wins UV sensitive t-shirts or caps with STEM logo printed in UV sensitive ink.

**Extensions**: What to do if your students want to go further with this…

* Teach kids the science behind the sunburn. Pull in scientists from NCI and dermatologists to give the lowdown on incidence of skin cancer (leading cancer…more than other cancers combined). NCI has several researched based studies/programs targeted at middle school students
* Become a Sunwise School (EPA)
  + EPA’s Sunwise With Shade Poster Contest <http://www.epa.gov/sunwise/postercontest.html>
  + Enter/view UV Data on the EPA’s site and compare with NWS forecasts: <http://www.epa.gov/sunwise/uvdata.html>
* Complete an individual or group project: science fair, student service learning or scouting
* Maryland Skin Cancer Prevention Program has several online video games aimed at sun safety awareness: <http://www.sunguardman.org/>

**UV Index Projections**:

<http://www.weather.gov/view/national.php?prodtype=ultraviolet>

<http://oaspub.epa.gov/enviro/uv_search>

<http://www.weather.com/maps/activity/skinprotection/currentuvindex_large.html>

PSA Research resources:

<http://www.brainpop.com/search/search.weml?keyword=radiation>

<http://kidshealth.org/teen/safety/safebasics/tanning.html>

“Don’t Fry Day” PSA from the Maryland Skin Cancer Prevention Program Website: <http://www.youtube.com/watch?v=c9RHx9Aqsew>

Forecast Earth video about dangers of UV Radiation and Sun Exposure: <http://www.epa.gov/ozone/science/movies/index.html>